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(54) [Title of the Invention]

LABEL PRINTER AND PRINTING PAPER SUPPLY BODY [ROLL]

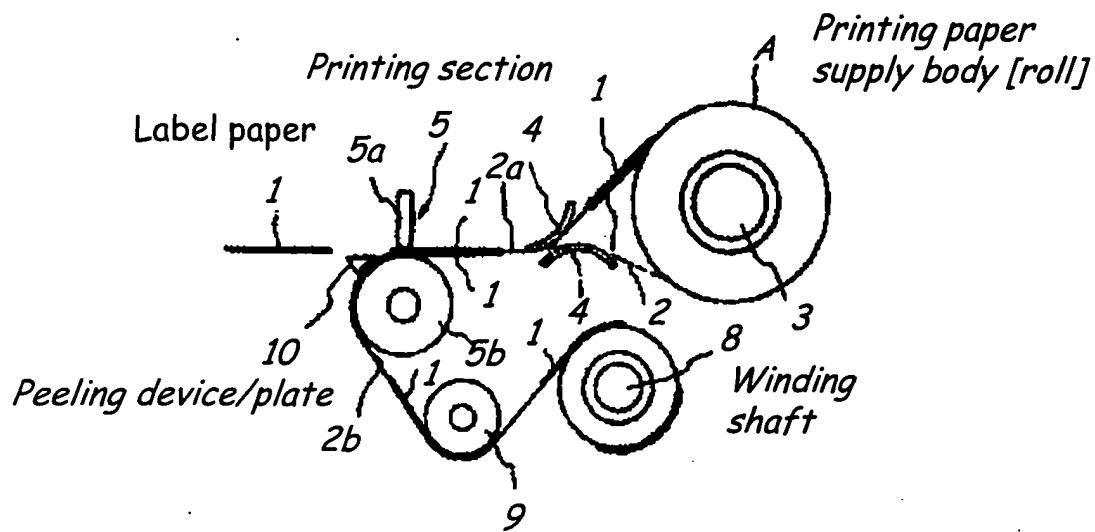
(57) [Abstract]

[Objective]

To provide a label printer and a printing paper supply body [roll] that can reduce consumption of peelable backing paper compared to conventional ones.

[Construction]

A printing paper supply body [roll] A, where label paper 1 is adhered onto both surfaces 2a & 2b of belt-shaped peelable backing paper 2 at a predetermined pitch, respectively, is installed on a supply shaft 3, and a supply route is established so as to wind the belt-shaped peelable backing paper 2 onto a winding shaft 8 in a state where the surface 2a of the printing application side, for example, is orientated toward the inside, so that a peeling device/plate 10 is engaged with the label paper 1 on the surface 2a of the printing application side, which has passed through a printing section 5, oscillating in the peeling direction. The label paper 1 is then peeled away from the peelable backing paper 2. The peelable backing paper 2 where the label paper 1 on one surface (the surface of printing application side) has been peeled away is wound onto a winding shaft. Therefore, the reinstallation of the peelable backing paper, which has been wound onto the winding shaft, enables the utilization of the label paper 1 which is adhered onto the other surface 2b.



[SCOPE OF PATENT CLAIMS]

Claim 1.

Label printer, where a printing paper supply body [roll], constructed by adhering label paper onto belt-state peelable backing paper along its longitudinal direction at a predetermined pitch, is drawn from a supply shaft; where the supply route is constructed so as to wind the peelable backing paper onto the winding shaft via a printing section where printing is applied onto the label paper; and where a peeling device/plate is engaged with label paper which has passed through the printing section, and which oscillates in the peeling direction is established in the proximity of the printing section.

Claim 2.

A printing paper supply body [roll], where label paper is adhered onto both surfaces of belt-state peelable backing paper in the longitudinal direction of the peelable backing paper at a predetermined pitch, respectively.

[DETAILED EXPLANATION OF INVENTION]

[0001]

[Industrial Applications]

The present invention relates to a label printer and a printing paper supply body [roll].

[0002]

[Prior Art]

A printing paper supply body [roll] A in general use is constructed as shown in Fig. 7 (a) and (b). A sticky layer is formed on the underside surface of label paper 1, and the label paper 1 is adhered onto one surface 2a of belt-shaped peelable backing paper 2 in the longitudinal direction (arrow B direction) of the peelable backing paper 2 at a predetermined pitch. The printing paper supply body [roll] A is general marketed as a wound body [roll] where the printing paper is wound to a roll state in the state where the surface 2a is orientated toward the outside.

[0003]

A conventional label printer where this printing paper supply body [roll] A is used is constructed as shown in Fig. 8. The wound body [roll] of the printing paper supply body [roll] A is installed on a supply shaft 3, and transferred to a winding shaft 8 via a guide 4, a printing section 5, a peeling plate 6 and a roll 7. In the case that the label paper 1 is thermo-sensitive, the printing section 5 is comprised of a thermal head 5a and a platen roll 5b, and while the peelable backing paper 2 with the label paper adhered, which has passed through the guide 4, passes between the thermal head 5a and the platen roll 5b, the label paper 1 makes contact with the thermal head 5a.

[0004]

Printing data is printed onto the thermal head 5a by synchronizing the rotation of the platen roll 5, and the pyrogen element of the thermal head 5a applies printing onto the label paper 1 according to the printing data by generating heat.

[0005]

The winding shaft 8 also winds & drives synchronous with the rotation of the platen roll 5b, and is constructed such that a predetermined tension is applied to the peelable backing paper 2, situated between the peeling plate 6 and the winding shaft 8. The label paper 1 where printing has been completed after passing through the printing section 5 is

peeled away from the peelable backing paper 2 due to tension applied to the peelable backing paper 2, functioning by the peeling plate 6 when passing under the peeling plate 6, and then, the label paper 1 is produced. Therefore, only peelable backing paper 2 without the label paper 1 is wound onto the winding shaft 8.

[0006]

[Problems Overcome by the Invention]

With the conventional construction, when the printing paper supply body [roll] A installed on the supply body 3 has been consumed, the peelable backing paper 2 which has been wound onto the winding shaft 8 is removed, and a newly acquired printing paper supply body [roll] A is installed on the supply shaft 3, and used.

[0007]

As explained above, in the current situation the consumption of the peelable backing paper 2 per label paper is large and the label cost is high. The objective of the present invention is to provide a label printer and a printing paper supply body [roll] that can reduce the consumption of the peelable backing paper 2 compared to those of the prior art.

[0008]

[Problem Resolution Means]

The label printer according to Claim 1 is characterized by the fact that a printing paper supply body [roll] constructed so that label paper is adhered onto belt-shaped peelable backing paper in the longitudinal direction at a predetermined pitch, is drawn from a supply shaft; and a supply route is constructed so as to wind the peelable backing paper onto the winding shaft via a printing section that applies printing onto the label paper; and a peeling device/plate that engages with the label paper, which has passed through the printing section, and which oscillates in the peeling direction is established in the proximity of the printing section.

[0009]

The printing paper supplying body [roll] according to Claim 2 is characterized by the fact that label paper is adhered onto both surfaces of belt-shaped peelable backing paper in the longitudinal direction of the belt-shaped peelable backing paper at a predetermined pitch, respectively.

[0010]

[Operation]

According to this construction, the printing paper supply body [roll], where the label paper is adhered onto both surfaces of the belt-shaped peelable backing paper in the longitudinal direction of the peelable backing paper at a predetermined pitch, is installed on the supply shaft; and the supply route is established so as to wind the peelable backing paper onto the winding shaft in the state, for example, where the surface, which is the side for printing application by the printing section, is orientated toward the inside, via the printing section, so that the peeling device/plate engages with the label paper on the surface of the printing application side, which has passed through the printing section, and oscillates in the peeling direction. The label paper is then peeled away from the peelable backing paper. Peelable backing paper, where the label paper on one surface (above-mentioned surface of printing application side) has been peeled away, is wound onto the winding shaft.

[0011]

As explained above, peelable backing paper that has been wound onto the winding shaft is reinstalled on the supply shaft, enabling the use of the label paper that is adhered onto the other surface.

[0012]

[Embodiment]

An embodiment for the present invention is explained hererafter, with reference to Fig. 1 through Fig. 6. Furthermore, components that function similarly to those in Fig. 7 and Fig. 8 are marked with the same symbols, and are also explained.

[0013]

A printing paper supply body [roll] for the present invention is constructed as shown in Fig. 3 (a) and (b). In the conventional printing paper supply body [roll], as shown in Fig. 7 (a) and (b), label paper 1 is adhered onto only one surface of peelable backing paper 2. However, in the printing paper supply body for the present invention, label 1 is adhered onto both surfaces of the peelable backing paper 2.

[0014]

A label printer where this new print paper supplying body is used is constructed as shown in Fig. 1 and Fig. 2. A supply route is constructed so as to wind the peelable backing paper 2 that has been drawn from the printing paper supply body [roll] A, installed on a supply shaft 3, onto a winding shaft 8 via a print section [5]. More specifically, the supply route for the peelable backing paper 2 causes the peelable backing paper 2 to become inverted at a platen roll 5b, and is transferred to a winding shaft 8 via a guide

roll 9.

[0015]

A peeling device/plate 10 that engages with the label paper 1, which has passed through the printing section 5, and which oscillates in the peeling direction is established in the proximity of the printing section 5. The peeling device/plate 10, as shown in Fig. 2, is installed at multiple ends [sic.; Translator's note: this may be typo because 'multiple' and 'other' in Japanese are pronounced the same, so that 'other ends' may be appropriate according to Fig. 2] of levers 12a & 12b, where one end is supported by a [pivot] shaft 11 so as to oscillate, respectively, and an end 10a of the peeling device/plate 10 makes contact with the peelable backing paper 2.

[0016]

The levers 12a & 12b are synchronized with the rotation of the platen roll 5b, and oscillate & drive as follows: a 1st toothed wheel 13 is installed at one end of the platen roll 5b, and a 2nd toothed wheel 15, supported by a shaft 14, is engaged with the 1st toothed wheel 13. A pin 16, which will be engaged with the lever 12a, is implanted into the 2nd toothed wheel 15. Therefore, when the platen roll 5b rotates, the 2nd toothed wheel 15 rotates via the 1st toothed wheel 13, and from the state shown in Fig. 4 to the state shown in Fig. 5, the pin 16 becomes engaged with the bottom surface of the lever a [sic.; '12a'?], and the levers 12a & 12b gyrate upward using the shaft 11 as the [pivot] center, and then, the peeling device/plate 10 oscillates.

[0017]

When the peelable backing paper 2 transfers as associated with the rotation of the platen roll 5b and reaches the position of the peeling device/plate 10, the starting end of the label paper 1 on one surface (the surface of printing application side) 2a runs on the peeling device/plate 10 as shown in Fig. 5, and is peeled away from the peelable backing paper 2. As explained above, when the peelable backing paper 2 additionally transfers from the situation where the starting end of the label paper 1 runs on the peeling device/plate 10, as shown in Fig. 6, the peeling device/plate 10 shifts upward and peels the label paper 1 away from the peelable backing paper 2, and the rotation torque of the platen roll 5b is reduced.

[0018]

For label paper 1 peeled away from the peelable backing paper 2 by the peeling device/plate 10, a user picks up a portion that is exposed to a concave portion 10b, formed to the peeling device/plate 10 with his/her fingers, and the label paper 1 is adhered onto the adherence object. Peelable backing paper 2 where the label paper 1 on one surface (the surface of print application side) has been peeled away by the peeling device/plate 10 is wound onto the winding shaft 8 in the state where the other surface 2b is orientated toward the outside.

[0019]

As explained above, when the printing paper supply body [roll] A installed on the supply shaft 3 has been completely used, the peelable backing paper 2 wound onto the winding shaft 8 is removed in the state of a wound body [roll], and is reinstalled onto the supply shaft 3. Then, the label issuing can be implemented similarly using the label paper 1 remaining on the other surface 2b. Therefore, the peelable backing paper 2 can be effectively utilized and the consumption of the peelable backing paper 2 can be reduced to one-half (1/2) of that in the prior art.

[0020]

In the embodiment, the supply route is established to wind the peelable backing paper 2 onto the winding shaft 8 in the state where the surface 2a of the printing application side by the printing section 5 is orientated toward the inside. However, in the case of establishing the supply route so as to wind the peelable backing paper 2 onto the winding shaft 8 in the state where the surface of the printing application is orientated toward the outside, as shown by the virtual line in Fig. 1, the guide 4 is established so that the printing paper supply body [roll] A is drawn in the state where the other surface 2b becomes the surface for printing application.

[0021]

[Efficacy of the Invention]

According to the label printer for the present invention, a printing paper supply body [roll], where label paper is adhered onto belt-state peelable backing paper in the longitudinal direction at a predetermined pitch, is drawn from a supply shaft; a supply route is constructed so as to wind the peelable backing paper onto the winding shaft via a printing section where printing is applied onto the label paper; and, a peeling device/plate that is engaged with the label paper, which has passed through the printing section, and which oscillates in the peeling direction is established in the proximity of the printing section. Therefore, when peeling the label paper away by the peeling device/plate making contact with the peelable backing paper, the torque required in the transfer system of the peelable backing paper can be reduced, and there is no adverse influence to the transfer of the peelable backing paper. Therefore, transfer defects will never occur and the improvement of the printing quality can be expected.

[0022]

Further, in the case that the printing paper supply body [roll] for the present invention where the label paper is adhered onto both surfaces of the belt-state peelable backing paper in the longitudinal direction of the peelable backing paper at a predetermined pitch, respectively, is used in the label printer, since the peelable backing paper can be used

twice, the consumption of the peelable backing paper per label paper is drastically reduced and low label cost can be realized.

[BRIEF EXPLANATION OF DRAWINGS]

[Fig. 1]

Fig. 1 is block diagram of the label printer for the present invention.

[Fig. 2]

Fig. 2 is a plan view of the main section of the device.

[Fig. 3]

Fig. 3 is an explanatory diagram of the printing paper supply body [roll] of the present invention.

[Fig. 4]

Fig. 4 is an explanatory diagram of the initial status of the device.

[Fig. 5]

Fig. 5 is an explanatory diagram of the state where the label paper runs on the peeling device/plate in the device.

[Fig. 6]

Fig. 6 is an explanatory diagram of the state where the peeling device/plate in the device oscillates.

[Fig. 7]

Fig. 7 is an explanatory diagram of a conventional printing paper supply body [roll].

[Fig. 8]

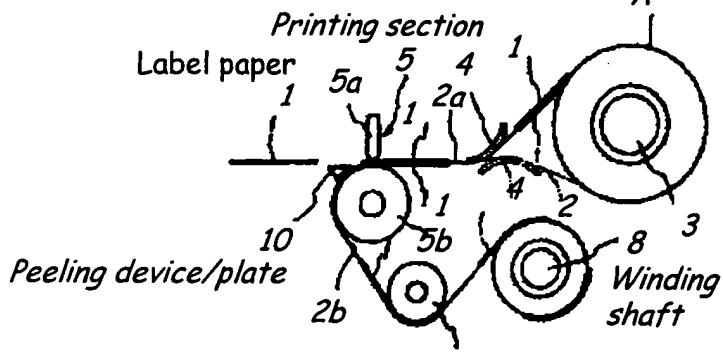
Fig. 8 is a block diagram of a conventional label printer.

[Explanation of Symbols]

- A printing paper supply body [roll]
- 1 label paper
- 2 peelable backing paper
- 2a, 2b one surface of the peelable backing paper, and the other surface, respectively
- 3 supply shaft
- 5 printing section
- 8 winding shaft
- 10 peeling device/plate

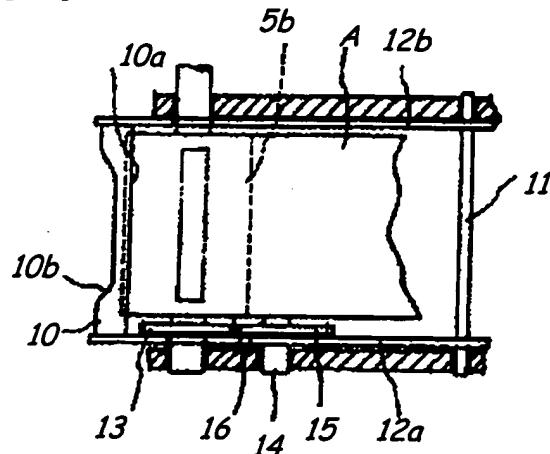


[FIG. 1]

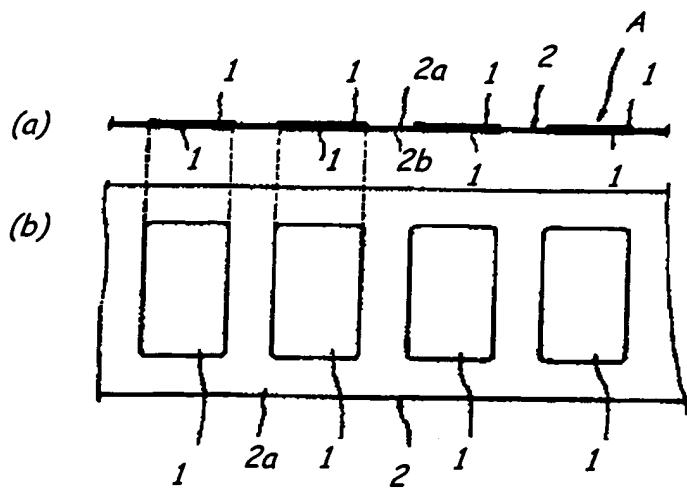


Printing paper supply body [roll]

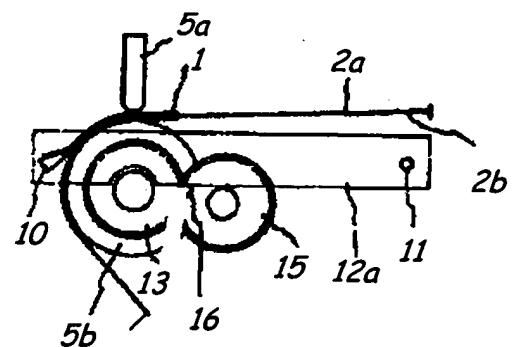
[FIG. 2]



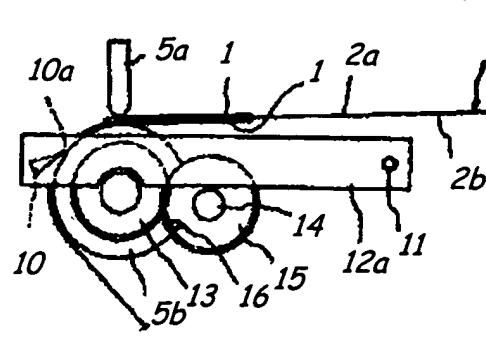
[FIG. 3]



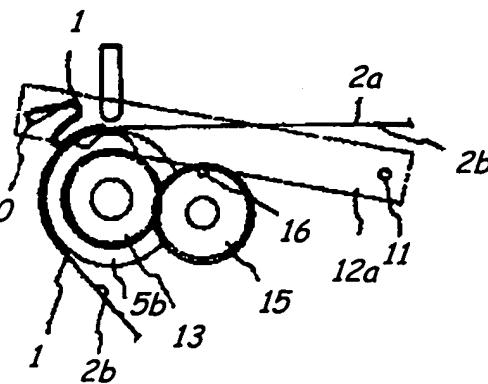
[FIG. 5]



[FIG. 4]

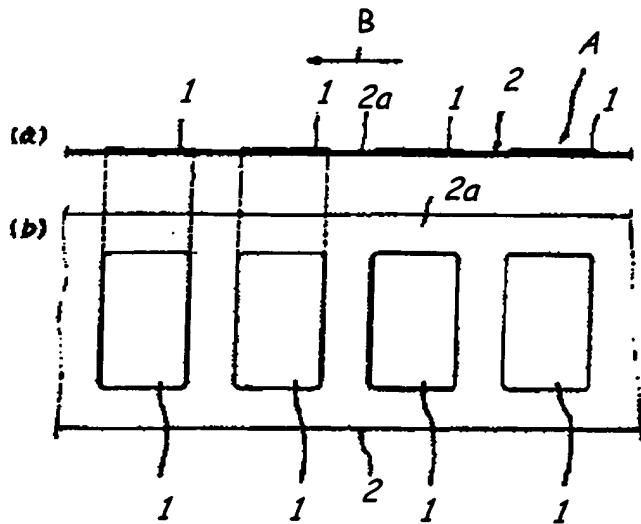


[FIG. 6]





[FIG. 7]



[FIG. 8]

